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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/605,085	06/26/2000	Jonathan H. Gross	IRI05342	3378

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EXAMINER	
MOORMAN, EARL J	
ART UNIT	**PAPER NUMBER**
2683	

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/605,085	GROSS ET AL.	
	Examiner	Art Unit	
	Earl J. Moorman	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-19 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2-4 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. **Claims 1-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogg et al. (U.S. Patent Number 6,104,926) in view of Martin et al. (U.S. Patent Number 6,061,562).

3. Regarding **claim 1**, Hogg et al. teaches a method of maintaining a terrestrial cell site handoff list for an airborne cellular system (col.8: lines 61-67, col.9: lines 1-8), comprising maintaining a beam pattern of communications beams (FIG.2: numeral 40) transmitted from an airplane (FIG.2: numeral 32) relative to cellular system users (abstract, col.5: lines 30-54), determining locations of respective cell sites within a vicinity of footprints of the respective beams transmitted from the airplane (col.7: lines 61-67, col.8: lines 1-27) and calculating a list of viable handoff terrestrial cell site candidates (col.8: lines 61-67, col.9: lines 1-8) based on the maintaining of a beam pattern (col.5: lines 30-54) and the determining of locations of respective cell sites (abstract, col.7: lines 61-67, col.8: lines 1-27). What Hogg et al. does not specifically teach is determining a location and heading of the airplane; determining locations of respective beams transmitted from the airplane based on airplane flight pattern data and calculating a list of viable handoff terrestrial cell site candidates based on the determining of a location and heading of the airplane and the determining of locations of respective beams transmitted from the airplane based on airplane flight pattern data.

However, Martin et al. teaches determining a location and heading of the airplane (FIG.1: numeral 30, col.2: lines 37-50), determining locations of respective beams (FIG.1: numeral 40) transmitted from the airplane based on airplane flight pattern data (FIG.1: numeral 30, col.3: lines 1-14, col.5: lines 30-42, col.8: lines 57-62) and calculating a list of viable handoff terrestrial cell site candidates based on the determining of a location and heading of the airplane and the determining of locations of

respective beams transmitted from the airplane based on airplane flight pattern data (col.2: lines 23-50, col.7: lines 38-53, col.8: lines 23-39, col.8: lines 57-62).

Hogg et al. and Martin et al. are combinable because they are from the same field of endeavor, that is, a method for performing call handoff in an airborne cellular system. Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify Hogg et al. to include Martin et al. in order to increase the total number of cell sites that any given beam interacts with and efficiently provide an accurate real-time candidate handoff list by determining the locations and headings of the airplane and by determining the locations of respective beams transmitted from the airplane based on flight pattern data.

4. Regarding **claim 2**, Martin et al. teaches a method wherein the determining of a location and heading of the airplane comprises determining a flight pattern location of the airplane via a telemetry link (col.5: lines 30-42, col.8: lines 23-39, col.8: lines 57-62).

5. Regarding **claim 3**, Hogg et al. teaches a method wherein the calculating of a list of viable handoff terrestrial cell site candidates comprises mapping data generated from the maintaining of a beam pattern (FIG.2: numeral 40, col.5: lines 30-54) and the determining of locations of respective cell sites to a cell location database to determine the viable handoff terrestrial cell site candidates (abstract, col.7: lines 61-67, col.8: lines 1-27). What Hogg et al. does not specifically teach is the determining of a location and heading of the airplane, and the determining of locations of respective beams transmitted from the airplane based on airplane flight pattern data.

However, Martin et al. teaches the determining of a location and heading of the

airplane (FIG.1: numeral 30, col.2: lines 37-50), and the determining of locations of respective beams transmitted from the airplane based on airplane flight pattern data (FIG.1: numeral 30, col.3: lines 1-14, col.5: lines 30-42).

Hogg et al. and Martin et al. are combinable because they are from the same field of endeavor, that is, a method for performing call handoff in an airborne cellular system. Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify Hogg et al. to include Martin et al. in order to increase the total number of cell sites that any given beam interacts with and efficiently provide an accurate real-time candidate handoff list by determining the locations and headings of the airplane and by determining the locations of respective beams transmitted from the airplane based on flight pattern data.

6. Regarding **claim 4**, Hogg et al. teaches a method further comprising ranking each of the viable handoff terrestrial cell site candidates based on associated probability data found during the calculating of a list of viable terrestrial cell site candidates (abstract, col.8: lines 16-27).

7. Regarding **claim 5**, Hogg et al. teaches a method wherein a number of the viable handoff terrestrial cell site candidates found during the calculating of a list of viable handoff terrestrial cell site candidates is protocol-dependent (col.7: lines 61-67, col.8: lines 1-52).

8. Regarding **claim 6**, Hogg et al. further teaches a method wherein the calculating of a list of viable handoff terrestrial cell site candidates is performed for each of the respective beams transmitted form the airplane (FIG.2: numeral 40, col.5: lines 29-54).

9. Regarding **claim 7**, Hogg et al. also teaches a method further comprising dividing up the list of viable handoff terrestrial cell site candidates into multiple candidate groups according to candidate geographic locations within each of the respective beams transmitted from the airplane (FIG.2: numeral 40, col.3: lines 1-14, col.5: lines 29-54, col.8: lines 57-62) and cycling through the multiple candidate groups to further reduce the list of viable handoff terrestrial candidates based on the multiple candidate groups (col.3: lines 15-24).

10. Regarding **claim 8**, Hogg et al. teaches a method wherein the cycling through the multiple candidate groups introduces an associated handoff delay (col.4: lines 25-45).

11. Regarding **claim 9**, Hogg et al. teaches a method further comprising updating the list of viable handoff terrestrial cell site candidates as a function of time as the airplane flight pattern data changes (col.5: lines 5-10, col.8: lines 27-37, col.8: lines 61-67, col.9: lines 1-8).

12. Regarding **claim 10**, Martin et al. teaches a method wherein the calculating of a list of viable handoff terrestrial cell site candidates is performed to compensate for airplane flight pattern changes caused by adverse weather conditions (col.4: lines 49-60, col.5: lines 30-42, col.12: lines 31-40).

13. Regarding **claim 11**, Hogg et al. teaches a method further comprising calculating viable airplane beams for receiving handoffs from terrestrial cell sites (col.5: lines 30-54) and creating an airplane beam handoff list based on the calculating of viable airplane beams (col.7: lines 61-67, col.8: lines 1-27).

14. Regarding **claim 12,** Hogg et al. also teaches a method further comprising dividing the list of viable handoff terrestrial cell site candidates into time-sensitive candidates and non-time-sensitive handoff candidates (col.3: lines 54-67, col.4: lines 1-24).

15. Regarding **claim 13**, Hogg et al. teaches wherein a cellular communications system having an airborne repeater (the components in the airplane and the system), an apparatus for calculating a list of terrestrial cell site handoff candidates (col.8: lines 61-67, col.9: lines 1-8), comprising a receiver for receiving airplane beam pattern information regarding geographic coverage of communication beams (FIG.2: numeral 40) transmitted from the airplane and terrestrial cell site location information (col.5: lines 30-54, col.7: lines 61-67, col.8: lines 1-27), a database for storing handoff coordination information (col.8: lines 65-67, col.9: lines 1-8) and a processor for calculating a handoff candidate list based on information from the receiver and the database to enable calls to be handed off from the communications beams transmitted from the airplane to terrestrial cell sites in a manner that optimizes call traffic routing (abstract, col.6: lines 65-67, col.7: lines 1-7, col.7: lines 45-47, col.7: lines 61-67, col.8: lines 1-27, col.8: lines 38-40). What Hogg et al. does not specifically teach is a receiver for receiving airplane flight pattern information.

However, Martin et al. teaches a receiver for receiving airplane flight pattern information (FIG.1: numeral 30, col.2: lines 37-50, col.5: lines 30-42, col.8: lines 24-33, col.8: lines 57-62).

Hogg et al. and Martin et al. are combinable because they are from the same field of endeavor, that is, a method for performing call handoff in an airborne cellular system. Therefore, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to modify Hogg et al. to include Martin et al. in order to efficiently provide an accurate real-time candidate handoff list and to determine what service region an airplane is orbiting based on receiving airplane flight pattern information.

16. Regarding **claim 14**, Martin et al. teaches an apparatus wherein the flight pattern information comprises airplane location, heading, and beam footprint information (col.5: lines 30-42, col.8: lines 24-33, col.8: lines 57-62).

17. Regarding **claim 15**, Hogg et al. also teaches an apparatus wherein the receiver, the database and the processor are implemented in a ground-based base transceiving station (col.5: lines 29-54, col.7: lines 45-47).

18. Regarding **claim 16**, Hogg et al. further teaches an apparatus wherein the receiver, the database and the processor are implemented in the airplane and communicate with a ground-based control station via a telemetry link (FIG.3: numeral 46, col.5: lines 30-42, col.6: lines 5-67, col.7: lines 1-7, col.8: lines 23-39)

19. Regarding **claim 17**, Hogg et al. teaches an apparatus wherein the handoff candidate list includes cell sites within a single communications beam (col.5: lines 30-54, col.7: lines 61-67, col.8: lines 1-27).

20. Regarding **claim 18**, Hogg et al. teaches an apparatus wherein the processor is for dividing each of the communications beams into groups of cell sites within each of

the communications beams and for cycling through the groups of cell sites to further reduce the handoff candidate list (col.3: lines 1-24, col.5: lines 29-54, col.7: lines 45-47).

21. Regarding **claim 19**, Hogg et al. teaches an apparatus wherein the processor is further for calculating a handoff list for terrestrial cell sites to candidate communications beams (col.6: lines 65-67, col.7: lines 1-7, col.7: lines 45-47, col.8: lines 61-67, col.9: lines 1-8).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Earl J. Moorman whose telephone number is (703) 305-8158. The examiner can normally be reached on Monday-Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William G. Trost can be reached on (703) 308-5318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-9508 for regular communications and (703) 305-9508 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Earl Moorman EJM
February 6, 2003

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